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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte SATOSHI FURUKAWA, TOSHIHIKO KOJIMA, TAKASHI IWAKIRI, and KAZUMA YAMAMOTO

Appeal 2015-003918[1]
Application 12/449,447[2]
Technology Center 3600

Before HUBERT C. LORIN, PHILIP J. HOFFMANN, and BRADLEY B. BAYAT, *Administrative Patent Judges*.

HOFFMANN, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134(a) from the final rejection of claims 1–21. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

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[1] Our decision references Appellants' Specification ("Spec.," filed Aug. 7, 2009), Appeal Brief ("Appeal Br.," filed Oct. 27, 2014), and Reply Brief ("Reply Br.," filed Feb. 17, 2015), as well as the Final Office Action ("Final Action," mailed Dec. 30, 2013) and the Examiner's Answer ("Answer," mailed Dec. 16, 2014).

[2] According to Appellants, The Gates Corporation is the real party in interest. Appeal Br. 3.

According to Appellants, the "invention relates to a belt used for an automotive engine, general industrial power transmission machinery, and so on, especially to a friction transmission belt[,] which can be prevented from producing an abnormal noise." Spec. 1, ll. 5–8. We reproduce independent claim 1, below, as illustrative of the claims on appeal.

> 1. A friction transmission belt comprising a rubber layer having a friction surface, said rubber layer comprising short fibers oriented roughly parallel to the width direction of the belt, and wherein a part of the short fibers protrude from the friction surface,
>
> said rubber layer comprising only one kind of carbon black, said carbon black having an average nitrogen adsorption surface area between 40 and 49 (m^2/g), said friction surface being uneven due to the addition of said carbon black to said rubber layer, said friction surface exhibiting draining of water so that slippage of said friction transmission belt caused by water accumulating on said friction surface is prevented.

Appeal Br., Claims App.

REJECTION AND PRIOR ART

The Examiner rejects claims 1–21 under 35 U.S.C. § 103(a) as unpatentable over Edwards (US 6,824,485 B2, iss. Nov. 30, 2004), Nakafutami (US 5,804,644, iss. Sept. 8, 1998), and Tani (US 6,695,735 B2, iss. Feb. 24, 2004).

ANALYSIS

Based on our review of the record, for the reasons discussed in detail below, Appellants do not persuade us of error. Thus, we sustain the obviousness rejection of claims 1–21.

Claims 1–11 and 18–21

Appellants first argue against the rejection of claims 1–11 and 18–21 as a group. Appeal Br. 10–13. We base our analysis on claim 1, and the remaining claims stand or fall with claim 1.

Appellants argue that the rejection is erroneous because "[a]ll claims include the limitation of a 'friction surface being uneven due to the addition of said carbon black,'" and the Examiner does not establish that any reference teaches an uneven surface that results from adding carbon black. *Id.* at 10. Inasmuch as claim 1 is a claim directed to a friction transmission belt, rather than a method of forming a belt, for example, the claim is rendered obvious if the combined references result in the claimed structure of an uneven friction surface, regardless of whether such a surface results from adding carbon black. In this case, the Examiner's finding that "Edwards'[s] belt would further exhibit an uneven surface due to the short fibers extending beyond the surface, as shown in [F]ig. 1" is adequate to support the rejection. Answer 4; *see also* Appeal Br. 10 ("The Examiner has only shown that some form of surface unevenness may be present in Edwards . . ., but has not established that the unevenness . . . [is] due to a particular grade of carbon black."). Notwithstanding the above discussion, Appellants argument also is unpersuasive because it does not address the Examiner's combination. Pages 10–13 of the Appeal Brief discuss the claim limitation directed to a rubber layer comprising only one kind of carbon black that has an average nitrogen adsorption surface area between 40 and 49 (m^2/g), but address only Edwards and Tani. The Examiner's combination, however, relies on Nakafutami to disclose this limitation. Final Action 4.

Appellants argue that "Edwards'[s] belt is a molded belt with nonwoven fabric on the surface, so the fibers of the nonwoven would be predominantly parallel to the surface, and therefore not 'parallel to the width direction of the belt' as required by the claims." Appeal Br. 10. However, the Examiner's finding that "Tani teaches a transmission belt that discloses the orientation of the fibers as claimed" is adequate to support the rejection. Answer 5; *see also* Final Action 5 (citing Tani Fig. 1).

Appellants argue that

> Edwards'[s] belt is a molded belt with nonwoven fabric on the surface, . . . [while] [b]elts with fibers protruding from the friction surface are generally exposed by grinding or cutting a profile (e.g. v-ribs) into a vulcanized belt blank . . . . Thus, Edwards . . . teaches away from the oriented, protruding fiber limitation of claims 1 and 9 which is produced by cutting or grinding.

Appeal Br. 10–11. Based on our review of the Appeal and Reply Briefs, and the Declaration of Bobby E. South, dated March 11, 2013 ("Decl."), we are not persuaded that Edwards teaches away from being modified to include oriented fibers or protruding fibers. We acknowledge that "Edwards . . . teaches 'the non-woven region does not have the characteristic of uniformly spaced and aligned fibers[,] . . . the fibers comprising the non-woven region are randomly oriented.'" *Id.* at 11 (citing Edwards col. 3, ll. 1–4). Nonetheless, based on our review of the references and the Declaration, we determine that Appellants do not point to anything in Edwards that sufficiently "criticize[s], discredit[s], or otherwise discourage[s]" the Examiner's proposed modification of Edwards based on the teachings of Tani. *In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004). The differences between Edwards and Tani identified by Appellants are not sufficient to

prove that Edwards teaches away from the proposed modification. *See, e.g.*, *In re Beattie*, 974 F.2d 1309, 1312–13 (Fed. Cir. 1992).

Appellants argue that "[t]here is no evidence that Edwards'[s] surface 'exhibit[s] draining of water so that slippage . . . is prevented.'" Appeal Br. 11. Inasmuch as the Examiner's proposed combination of references renders obvious all of the structural limitations of the claims, including a rubber layer comprising short fibers oriented roughly parallel to a width direction of the belt, a part of the short fibers protruding from an uneven friction surface, and the rubber layer comprising only one kind of carbon black having an average nitrogen adsorption surface area between 40 and 49 (m^2/g), the Examiner's determination that the resulting friction surface would exhibit draining of water as claimed is adequately supported. Final Action 3–5.

Appellants argue that "the rejection fails to explain why or how one of ordinary skill . . . would combine Tani . . . and Edwards . . . with their fundamentally different methods of belt making and with Edwards . . . teaching away from the grinding methods of Tani . . . , or how that combination would produce the uneven surface of these claims." Appeal Br. 11–12. We disagree, however. Although the Examiner's reasoning on pages 3–5 of the Final Office Action is adequate to support the rejection, we add the following remarks for emphasis. The Examiner relies on Edwards to disclose numerous recitations of claim 1, but relies on Tani to teach the claimed short fibers. Final Action 4–5. As discussed throughout Appellants' Specification, carbon black and short fibers are used to prevent abnormal noise. *See, e.g.*, Specification, Abstract. As discussed in Tani, the use "of short fibers [results in] microscopic convexities, thereby suppressing

the occurrence of noise." Tani, col. 2, ll. 28–31. Thus, Tani provides a rational reason for modifying Edwards to include Tani's short fibers, which is a reason that Appellants use short fibers, in addition to the rationale provided by the Examiner; i.e., "to enhance the tensile strength of the belt in the width direction." Final Action 5.

Finally, after considering Bobby E. South's Declaration, we are unpersuaded that Appellants provide evidence of unexpected results sufficient to outweigh the evidence of obviousness. We note, for example, that the Declaration does not indicate that Appellants tested the claimed invention relative to the belts of Edwards or Tani, or any other belt in the prior art. Rather, the Declaration generally relies on and discusses the disclosure of the references themselves, to conclude that there is nothing to suggest combining the references as proposed by the Examiner. *See, e.g.*, Decl. ¶¶ 6, 7, 9–11. Such is not evidence of unexpected results which is sufficient to persuade us of error.

Claims 1–11, 13, 16, and 19–21

Appellants next argue against the rejection of claims 1–11, 13, 16, and 19–21 as a group. Appeal Br. 14–15. Specifically, Appellants argue that the Examiner provides an insufficient rationale for combining Nakafutami with Edwards and Tani. *Id.* at 14. More specifically, Appellants argue that the Examiner's "rationale has no evidentiary support in the cited references, but seems to rely solely on [Appellants'] disclosure." *Id.* We disagree with Appellants and agree with the Examiner, however, that Nakafutami provides a rational reason—wear resistance, resilience, elongation, and processability of the rubber composition (Answer 7)—for

further modifying, based on Nakafutami, the arrangement of Edwards as modified by Tani.

Claims 4–11, 14–17, and 19–21

Appellants next argue against the rejection of claims 4–11, 14–17, and 19–21 as a group. Appeal Br. 16–18. Specifically, Appellants' argument that it would not have been obvious to use diatomaceous earth is not persuasive. *Id.* at 16–17. Instead, we agree with the Examiner that

> [a]lthough Edwards does not explicitly disclose a diatomaceous earth additive in a rubber composition, Edwards provides a nexus as to why reinforcing fillers are favorable in column 5[,] lines 39[–]63. Nakafutami teaches diatomaceous earth as a reinforcing filler favorable to a rubber composition in column 8[,] lines 23[–]33.

Answer 9. This determination by the Examiner is sufficient to support adequately the rejection.

Appellants argue that they

> [n]ote . . . that zeolite is also listed by Nakafutami . . . along with diatomaceous earth, but the present specification shows that zeolite was ineffective while diatomaceous earth was successful in the inventive belt. (See Spec. at p. 21 lines 1[–]9). This is strong evidence of unexpected results and has not been addressed in the rejection.

Appeal Br. 16–17. This is not persuasive of error, however. We note that the referenced portion of the Specification states that "where zeolite is used instead of diatomaceous earth, no advantage is obtained. This may be because that zeolite has less water-absorbency than diatomaceous earth does." Spec. 21, ll. 5–8. In contrast to adding diatomaceous earth for water absorbency, the Examiner's proposed combination uses diatomaceous earth because Nakafutami teaches diatomaceous earth is a suitable reinforcing filler. This reason for using diatomaceous earth is not negated because of

the findings reported in Appellants' Specification, and the reason is adequate to support the rejection.

Finally, after considering Bobby E. South's Declaration, we are unpersuaded that Appellants provide evidence of unexpected results sufficient to outweigh the evidence of obviousness. We note, for example, that the Declaration does not indicate that Appellants conducted any testing. Rather, the Declaration generally relies on the disclosure of the references themselves, and concludes that there is nothing to suggest combining the references as proposed by the Examiner. *See, e.g.*, Decl. ¶¶ 9–11, 15–17, 21. Such is not evidence of unexpected results sufficient to persuade us of error.

Claims 12–19

Appellants next argue against the rejection of claims 12–19 as a group. Appeal Br. 18. We choose claim 12 for our analysis, and the remaining claims stand or fall with claim 12. In particular, Appellants' argument regarding intended use is not persuasive, inasmuch as it appears that the belt provided by the Examiner's proposed combination of Edwards, Tani, and Nakafutami is capable of being used in the presence of water accumulated on a friction surface of the belt, as stated in claim 12's preamble. *See* Answer 12.

Claims 2 and 13

Appellants next argue against the rejection of claims 2 and 13 as a group. Appeal Br. 18–19. Specifically, Appellants argue that "there is no evidence that Edwards'[s] surface 'is capable of preventing slippage caused by water under conditions of pulleys inclined towards one another.'" *Id.* Inasmuch as the Examiner's proposed combination of references renders obvious all of the structural limitations of the claims, including a rubber

layer comprising short fibers oriented roughly parallel to a width direction of the belt, a part of the short fibers protruding from an uneven friction surface, and the rubber layer comprising only one kind of carbon black having an average nitrogen adsorption surface area between 40 and 49 (m^2/g) (Final Action 3–5), the Examiner's determination that the resulting friction surface would exhibit draining such that slippage caused by water is further prevented under conditions of pulleys inclined towards one another, as claimed, is supported adequately (*see* Answer 12).

Claims 3 and 18

Appellants next argue against the rejection of claims 3 and 18 as a group. Appeal Br. 19. More specifically, Appellants argue that

> there is no evidence that the surface fibers of Edwards are "protruding" or "oriented parallel to the width" or that they wear down in the same way that the claimed protruding fibers wear down. Therefore, there is no evidence that the Edwards belt will prevent wet slippage when the fibers are worn down.

Id. (citation omitted). Inasmuch as the Examiner's proposed combination of references renders obvious all of the structural limitations of the claims, including a rubber layer comprising short fibers oriented roughly parallel to a width direction of the belt, a part of the short fibers protruding from an uneven friction surface, and the rubber layer comprising only one kind of carbon black having an average nitrogen adsorption surface area between 40 and 49 (m^2/g) (Final Action 3–5), the Examiner's determination that the fibers will wear the same as the claimed fibers, and will prevent wet slippage when the fibers are worn down, are supported adequately (*see* Answer 12).

DECISION

We AFFIRM the Examiner's obviousness rejection of claims 1–21.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED